

AMENDMENT TO THE DRAWINGS

Replacement sheets are provided for FIGs. 1-6. The proposed changes are detailed below in *Section B. Drawing Objections* of this Response. Applicant respectfully requests the Examiner approve the drawings as amended.

REMARKS

A. *Status of Application*

Claims 1-3 and 6-9 are pending. Claim 1 has been amended, and claims 28, 29, and 30 have been added. No new matter was introduced. Claims 1-3, 6-9, and 28-30 are presented for reconsideration.

B. *Drawing Objections*

FIGs. 1-6 stand objected to for allegedly to comply with 37 C.F.R. § 1.84(l) and (p). Applicant submits replacement drawing sheets under Appendix A correcting the inadvertent error, and in particular, providing uniform line thickness and legible number and character labels. Applicant submits the changes do not add new matter and respectfully requests the objections to the drawings be withdrawn.

C. *Section 102 Rejection*

Claims 1-3 and 6-9 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by the reference entitled "Associated Particle Sealed Tube Neutron Probe for Characterization of Materials" by Rhodes *et al.* The claims prior to any amendments made above were not anticipated by the cited reference. The present claims are also not anticipated by the cited reference.

Independent claim 1 has been amended and now recites:

A method for identifying fissile material, comprising:

casting an incident photon beam from an electron beam accelerator on the fissile material;

detecting an emerging photon beam within an energy range from about 1 MeV to about 50 MeV from the fissile material with an array of fission-fragment detectors, a first set of scintillator paddles, and a second set of scintillator paddles, wherein the array of fission-fragment detectors, the first set of scintillator paddles, and the second set of scintillator paddles are sensitive to different ranges of photon beam energy; and

determining a photon energy regime of the emerging photon beam, the photon energy level identifying the fissile material.

Support for the amendment may be found, for example in the claims as filed and the paragraphs beginning on page 5, line 19 and the paragraph on page 7, line 21 of the Specification.

The Rhodes disclosure is based on a gamma-ray transmission imaging (GRTI) hodoscope system separately or in combination with a fast-neutron transmission imaging (FNTI) system used to detect explosives and drugs in aviation, customs, and physical security environments. *See* Introduction Section beginning on page 288 and the section entitled “Detection modes” beginning on page 290. To detect the explosives and/or drugs, Rhodes discloses measuring specific gamma ray decays for indicating specific elements. *See* FIG. 6 and the supporting text. This cannot be construed as detecting an emerging photon beam within an energy range from about 1 MeV to about 50 MeV from the fissile material, as recited claim 1.

Nowhere in the Rhodes reference is there any evidence that the GRTI system and/or the FNTI system, *explicitly* or *inherently*, detects an emerging photon beam within an energy range from about 1 MeV to about 50 MeV from a fissile material with an array of fission-fragment detectors, a first set of scintillator paddles¹, and a second set of scintillator paddles, wherein the array of fission-fragment detectors, the first set of scintillator paddles, and the second set of scintillator paddles are sensitive to different ranges of photon beam energy.

Additionally, the Rhodes reference is directed to a neutron-based detection scheme. *Id.* In order to detect the neutrons, Rhodes provides neutron detectors as shown in FIG. 1. Rhodes lacks disclosure regarding the detection of an emerging *photon* beam with the appropriate *photon* detectors. Furthermore, the Rhodes reference detects explosives and drugs and is silent to the identification of a fissile material as recited in claim 1.

It is well established that “[a]nticipation by inherency requires that 1) the missing descriptive matter be ‘necessarily present’ in the prior art reference. *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991).

For at least these reasons, the Rhodes reference fails to disclose, explicitly or inherently, all the elements of claim 1, and the anticipation rejection should be withdrawn.

¹ Applicant disagrees with the Office’s interpretation of the term scintillator paddles. *See* page 3 of the Final Office Action.

C. *Section 103 Rejections*

To establish a *prima facie* case of obviousness, the Examiner must show: (1) the prior art reference teaches or suggests all of the claim limitations; (2) some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the reference; and (3) a reasonable expectation of success that such modifications or combinations would work. MPEP § 2142; *see also In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). If any one of the three elements is missing, a *prima facie* case of obviousness cannot be established.

1. *The Rhodes References*

Claims 1-3 and 6-9 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over the Rhodes reference. As noted above, the Rhodes reference fails to teach or suggest all the elements of claim 1, and therefore, does not anticipate or make obvious independent claim 1 and its dependent claims.

2. *The Fainberg Reference*

Claims 1-3 and 6-9 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over the Fainberg reference. However, the Office fails to establish a *prima facie* case of obviousness as the Office did not present *any* evidence on record how Fainberg teaches or suggests the elements of the claims. *See* page 5 of the Final Office Action. Applicant submits that Fainberg fails to teach or suggest the elements of independent claim 1.

3. *The Secondary References Do Not Cure the Deficiencies*

Claims 1-3 and 6-9 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over the Rhodes reference in view of either the Geus reference or the Majewski reference. Claims 1-3 and 6-9 also stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over the Rhodes reference or the Fainberg reference in view of the Lieber reference, the Leo reference, the Sanabria reference or the Kotov reference.

As explained in Section G of the May 15, 2006 Response, the Geus reference and the Majewski reference each fails to cure the shortcomings of the Rhodes and Bruschini² references. For example, the Geus and Majewski references nowhere disclose or suggest detecting an emerging photon beam within an energy range from about 1 MeV to about 50 MeV from fissile material with an array of fission-fragment detectors, a first set of scintillator paddles, and a second set of scintillator paddles, wherein the array of fission-fragment detectors, the first set of scintillator paddles, and the second set of scintillator paddles are sensitive to different ranges of photon beam energy. Both Geus and Majewski focus on detecting x-rays, which is outside of the energy range as recited in claim 1, as would be understood by one of ordinary skill in the art.

For example, Geus clearly shows absorption curves from an *x-ray* beam. *See* Brief Description of the Drawings; *see also* column 4, lines 25-60. Similarly, the Majewski reference is directed towards an x-ray imaging system that includes scanning x-ray beams and detecting these beams. *See* Abstract. Each of these regimes, separately or in combination with Rhodes and or Fainberg, fails to teach or suggest the elements of independent claim 1.

The Leo reference, the Sanabria reference, and the Lieber reference each fail to teach or suggest all the elements of claim 1, and the Office has failed to provide evidence to the contrary. The Office merely points out that Leo discloses scintillator detectors and that Sanabria discloses arrays of parallel plate avalanche detectors. *See* page 6 of the Final Office Action. This clearly does not establish a *prima facie* case of obviousness. M.P.E.P § 2143.01

The Office also alleges that the Kotov reference is almost identical to claim 1. This conclusion is incorrect. The Kotov reference is directed to determining energy dependence of fission cross-sections of heavy nuclei. *See* Abstract and Summary of Invention. It appears that the Office has incorrectly related Kotov's disclosure of *protons* to the detecting of *photons* as recited in claim 1. However, a proton cannot be construed as a photon. Further, Kotov discloses an energy range of about 200 MeV to 1000 MeV, which is well above the recited energy range of claim 1.

² The Final Office Action does not maintain or has failed to withdraw the rejection with respect Bruschini. Applicant maintains that Bruschini, separately or in combination with other cited references, fails to render obvious claims 1-3 and 6-9.

For at least the reasons above, each of the secondary references, separately or in combination with Rhodes and/or Fainberg, fail to teach or suggest all the elements recited in independent claim 1. Therefore, independent claim 1 and its dependent claims are patentably distinct over the cited combinations.

4. *The Office Failed to Establish a Motivation to Combine the References*

It is the Office's burden to establish some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. § 2143.01.

The Office's alleged motivation to combine Rhodes/Bruschini and Geus or Rhodes/Bruschini and Majewski is because Geus and/or Majewski allegedly teach two detectors sensitive to different energy levels. See page 10 of the Office Action mailed 2/13/06. This is insufficient to establish a motivation to combine these references or to achieve the elements of the claims. A mere assertion does not establish a *prima facie* case of obviousness. M.P.E.P. § 2144.03 requires that the Office's position must be supported by citing published references or by an Examiner's Affidavit sufficient to support the rejection. See *W.L. Gore Assoc., Inc. v. Garlock, Inc.*, 220 USPQ 303, 312-313 (Fed. Cir. 1983) (to imbue one of ordinary skill in the art with knowledge of the instant invention, where no prior art reference or references of record convey or suggest that knowledge, is improper).

The Office also alleges that it would have been obvious at the time of the invention to use the scintillator detectors of Leo or the array of target-detectors of Sanabria. See page 7 of the Final Office Action. This conclusion is unsupported and still does not establish obviousness. See page 10 and page 11 of the Office Action mailed 2/13/06.

It appears that the Office is seeking to employ a conclusory statement that the recited features are *per se* obvious because, in the Office's unsupported opinion, those features are obvious design choices. A mere assertion does not establish a *prima facie* case of obviousness. M.P.E.P. § 2144.03 requires that the Office's position must be supported by citing published references or by an Examiner's Affidavit sufficient to support the rejection. See *W.L. Gore Assoc., Inc. v. Garlock, Inc.*, 220 USPQ 303, 312-313 (Fed. Cir. 1983) (to imbue one of ordinary skill in the art with knowledge of the instant invention, where no prior art reference or references of record convey or suggest that knowledge, is improper).

5. *The Office Failed to Establish a Reasonable Expectation of Success*

It is the Office's burden to establish a reasonable expectation of success. M.P.E.P § 2143.02. None have been established here. The Office has provided no discussion as to why there would be a reasonable expectation of success in its proposed modifications of Rhodes combined with Geus or Majewski, Bruschini combined with Geus or Majewski, Rhodes combined with Lieber, Leo, Sanabria reference and the Kotov reference, or Fainberg combined with Lieber, Leo, Sanabria reference and the Kotov reference.

Applicant respectfully submits that because the Office has failed to establish a *prima facie* case of obviousness, the § 103 rejections should be withdrawn.

D. *New Claims 28, 29, and 30*

The present paper adds claims 28 through 30 which are directed to a frequency range of an asymmetric input signal. Support for the claims may be found, for example, in FIG. 1 and supporting text of the Specification.

Applicant asserts that the cited references fail to teach or suggest the elements of claims 28, 29, and 30. In particular, each of the cited reference fails to disclose directing an electron beam onto a radiator for producing a photon beam through bremsstrahlung process, as recited in claim 28. Furthermore, each of the cited reference fails to disclose producing electron pairs with a converter and detecting an energy range of the electron pairs exceeding about 6 MeV as recited in claims 29 and 30, respectfully.

Additionally, claims 28, 29, and 30 are dependent claims of independent claim 1. As noted above, claim 1 is patentably distinct over the cited references. Therefore, claims 28, 29, and 30 are patentably distinct over the cited references for at least the same reasons.

PETITION FOR EXTENSION OF TIME

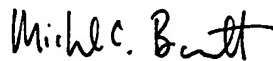
Pursuant to 37 C.F.R. § 1.136(a), Applicant petitions for an extension of time of one-month up to and including December 22, 2006, in which to respond to the outstanding Action. A check for the small entity fee for a one-month extension of time (\$60.00) is enclosed. Should any additional fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason relating to the enclosed materials, or should an overpayment be included, the Commissioner is authorized to deduct or credit the appropriate fees to or from Fulbright & Jaworski Deposit Account No. 50-1212/ COPL:002/MCB.

CONCLUSION

Applicant believes that these remarks fully respond to all outstanding matters for this application. Applicant respectfully requests that the rejections of all claims be withdrawn so the claims may swiftly pass to issuance.

Should the Examiner desire to sustain any of the rejections discussed in this Response, the courtesy of a telephone conference between the Examiner, the Examiner's supervisor, and the undersigned attorney at 512-536-3018 is respectfully requested in advance.

Respectfully submitted,



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